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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/788,331	02/16/2001	Peter C. Sercel	ALG07NP	6109
36394	7590	02/03/2004	EXAMINER	
CHRISTIE, PARKER & HALE, LLP			LEE, JOHN D	
350 W. COLORADO BLVD.			ART UNIT	
SUITE 500			PAPER NUMBER	
PASADENA, CA 91105			2874	

DATE MAILED: 02/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/788,331

Applicant(s)

SERCEL ET AL.

Examiner

John D. Lee

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3, 5-15, 18, 20, 22 and 24-60 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3, 5-10, 12-15, 18, 20, 22, 24-50, 52-54 is/are allowed.
- 6) ☒ Claim(s) 11, 51, 55-58 is/are rejected.
- 7) ☒ Claim(s) 59, 60 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) ☐ Other: _____

Applicant's communication filed on December 1, 2003, has been carefully studied by the Examiner. The previously applied 35 U.S.C. § 112 rejection has been obviated and is withdrawn. The previously applied objections to the abstract, to claim 58, and to the disclosure have also been obviated and are likewise withdrawn. Careful consideration of applicant's arguments has resulted in the withdrawal of the rejections of some claims. The rejections of certain other claims, however, are maintained. In particular, the previously applied 35 U.S.C. § 102(b) rejection is changed to a 35 U.S.C. § 103(a) basis, and therefore this action is **not** made final.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11 and 51 are rejected under 35 U.S.C. § 103(a) as being unpatentable over any of the articles by Kuwata-Gonokami et al (Optics Letters – October 1995), Frolov et al (Applied Physics Letters – April 1998), and Frolov et al (Applied Physics Letters – June 1998). These three (3) articles were all submitted by applicant in the Information Disclosure Statement received on October 10, 2002, and all three disclose a fiber-ring optical resonator comprising an optical fiber and a transverse fiber-ring resonator segment integral with the fiber, the segment having a circumferential optical path length which is different from the circumferential optical path length of the optical fiber adjacent to the resonator segment so that the resonator segment may support a substantially circumferential resonant optical mode (a “whispering gallery” mode) near

an outer surface of the optical fiber segment. The essential difference between the device of these articles and that of claims 11 and 51 is that none of the articles specify that the optical fiber is a resonator fiber, i.e. that resonance occurs within the fiber. The generation of the whispering gallery modes and the fact that the optical fibers are fiber lasers or amplifiers, however, are clear implications that the optical fibers are resonator fibers in each of the three (3) references. To have the fibers specifically be resonator fibers would thus have been obvious to a person of ordinary skill in the art. In these references, the coupling between the fiber-ring resonator assembly and the transmission optical fiber line of which it is a part, although not discussed, could take the form of any known optical coupling technique. Evanescent coupling would be one such known technique and would have been obvious to the person of ordinary skill in the art.

Claims 55-58 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,009,115 to Ho. In Figure 9 and in the paragraph bridging columns 9 and 10, Ho discloses methods of altering an optical resonance frequency of a waveguide-ring optical resonator which include the techniques set forth in these claims. Although the structures in Ho are planar type optical waveguides and not fiber type optical waveguides (as specified in these claims), the resonance frequency altering methods are the same as those methods set forth in the claims. Such methods would clearly have been recognized by the ordinarily skilled artisan as being applicable to *all* waveguide-ring optical resonators, whether of the fiber form or the planar waveguide form. The optical equivalence between fundamental waveguide propagation and coupling principles is long established and well known in the art, and the ordinarily skilled artisan routinely adapts processes and techniques from one waveguide type to the other. Publications in the art

are replete with examples of same (for example, textbooks having one chapter devoted to planar waveguide techniques and another chapter devoted to equivalent fiber techniques). The Examiner can cite such examples upon demand. The person of ordinary skill in the art would thus have found the claimed resonance frequency altering methods to be obvious in view of the teachings of Ho.

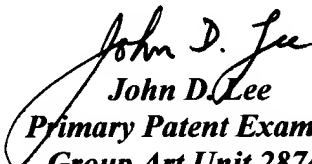
Claims 3, 5-10, 12-15, 18, 20, 22, 24-50, and 52-54 are allowed. The reasons are clearly stated in the previous Office action.

Claims 59 and 60 are objected to as being dependent upon a rejected claim, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. The disclosed structure of the Ho waveguide-ring optical resonators precludes any alteration by UV-irradiation.

Applicant's arguments filed December 1, 2003, with respect to the above-rejected claims, have been fully considered but they are not deemed to be persuasive. Regarding claims 55-58, applicant's argument that Ho fails to disclose *fiber*-ring resonators and only discloses planar waveguide-ring resonators has been addressed in the rejection above (now presented as an obviousness rejection). The argument that alteration by UV-irradiation in Ho is not disclosed or suggested is, however, persuasive (see the immediately preceding paragraph). Regarding claims 11 and 51, applicant's argument that the claims are distinct from the references because of the evanescent coupling limitation is not persuasive. The "additional evanescently-coupled optical element" mentioned by the Examiner in the previous Office action (in the statement of reasons for allowability) was not intended to refer to the transmission optical fiber line of which the fiber-ring resonator assembly is a part. This has now been clarified in the rejection. The

arguments regarding claims 3 and 20, 18 and 22, and 24-26 are persuasive and rejections of those claims have been withdrawn.

Any inquiry concerning the merits of this communication should be directed to Examiner John D. Lee at telephone number (571) 272-2351. The Examiner's normal work schedule is Tuesday through Friday, 6:30 AM to 5:00 PM. Any inquiry of a general or clerical nature (i.e. a request for a missing form or paper, etc.) should be directed to the Technology Center 2800 receptionist at telephone number (703) 308-0956, to the technical support staff supervisor (Team 2) at telephone number (571) 272-1615, or to the Technology Center 2800 Customer Service Office at telephone number (571) 272-1626.


John D. Lee
Primary Patent Examiner
Group Art Unit 2874